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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,815	09/07/2001	Heiner Bayha	VMP-491-A	3470

7590

04/25/2003

Andrew R Basile  
Young & Basile  
3001 West Big Beaver Road Suite 624  
Troy, MI 48084

EXAMINER

YAM, STEPHEN K

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 04/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/856,815

Applicant(s)

BAYHA ET AL.

Examiner

Stephen Yam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 18, 2002 has been entered.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 1-6 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. US Patent No. 4,636,643.

Regarding Claim 1, Nakamura et al. teach a device for detecting particles on a windshield (2) of a motor vehicle with a radiation source (1) (see Fig. 1 and Fig. 2) which emits optical rays onto the windshield, a photodetector (5 or 9) which receives a portion of the rays emitted onto the windshield, and a single control unit (7, 10) containing a first controller (7) and a second

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controller (10) which manages the radiation source and analyzes the rays received by the photodetector, such that the radiation source is positioned outside the field of vision of a driver of the vehicle (see Fig. 1) and aligned in such a way that the light rays from the radiation source strike the windshield in the area of the field of vision, and that the photodetector is pointed at the area of the windshield which the optical rays from the radiation source strike (see Fig. 1).

Regarding Claim 2, Nakamura et al. teach the radiation source formed as a light emitting diode (see Col. 3, line 30).

Regarding Claims 3 and 4, Nakamura et al. teach the photodetector including several receiving units (5) and formed as optoelectronic arrays (see Col. 3, lines 63-65).

Regarding Claims 5 and 6, Nakamura et al. teach a lens (see Col. 3, line 34-37) located in the direction of propagation of the beams reflected from the particles in front of the receiving units for focusing the beams.

Regarding Claim 8, Nakamura et al. teach the radiation source emitting optical rays with a wavelength in the infrared range (see Col 3, lines 27-33).

Regarding Claim 9, Nakamura et al. teach the control unit (7 and 10) managing the radiation source (see Col. 3, lines 59-61) in such a way that the type of particles can be determined from the rays received by the photodetector.

Regarding Claim 10, Nakamura et al. teach the control unit analyzing the rays received by the detector so that the type of particles can be determined (see Col. 3, line 67 to Col. 4, line 2).

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Koyama et al. US Patent No. 6,285,037.

Regarding Claim 7, Nakamura et al. teach the device as taught in Claim 1, according to the appropriate paragraph above. Nakamura et al. do not teach the radiation source emitting optical rays with a wavelength of 350-800nm. Koyama et al. teach (see Fig. 1 and 2) a device (1) for detecting particles on a windshield (G) of a motor vehicle with a radiation source (4) which emits optical rays onto the windshield (see Fig. 2) and a photodetector (5) which receives a portion of the rays emitted onto the windshield, wherein the radiation source emits optical rays having a wavelength of 700nm to 780nm (see Col. 1, lines 63-64). It would have been obvious to one of ordinary skill in the art at the time the invention was made to emit optical rays having wavelength of about 350nm to 800nm as taught by Koyama et al. in the image sensor of Nakamura et al., to improve detection for windshields with high infrared absorbances, as taught by Koyama et al. (see Col. 2, lines 33-40).

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Breed et al. US Patent No. 5,845,800.

Regarding Claim 11, Nakamura et al. teach the device as taught in Claim 1, according to the appropriate paragraph above. Nakamura et al. does not teach the device as an integral part of

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an interior light module in the vehicle. Breed et al. teach an optical sensor device for a vehicle with a field of view of the windshield (see Fig. 1D) of a vehicle wherein the sensor is mounted by an interior light module in the vehicle. It is well known in the art to integrate two adjacent components into a single larger housing, to provide simple attachment and greater protection. It would have been obvious to one of ordinary skill in the art at the time the invention was made to place the device of Breed et al. by an interior light module in the vehicle as taught by Breed et al. and integrate it with the interior light module, to provide the device with direct visual access to the windshield in the area of the field of vision and out of the field of vision of a driver of the vehicle and to improve the durability and assembly ease of the device.

6. Claims 12, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Stam et al. US Patent No. 5,923,027.

Regarding Claim 12, Nakamura et al. teach the device as taught in Claim 1, according to the appropriate paragraph above. Nakamura et al. do not teach the device as an integral part of a rearview mirror module in the vehicle. Stam et al. teach a device for detecting particles on a windshield of a motor vehicle with a radiation source (66) (see Fig. 2) which emits optical rays onto the windshield (see Fig. 3), a photodetector (32) which receives a portion of the rays emitted onto the windshield, and a control unit (see Col. 6, lines 6-15 and Col. 10, lines 32-34) which manages the radiation source and analyzes the rays received by the photodetector, wherein the radiation source is positioned outside the field of vision of a driver of the vehicle (see Fig. 3) and aligned in such a way that the light rays from the radiation source strike the windshield in the area of the field of vision, and that the photodetector is pointed at the area of the windshield

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which the optical rays from the radiation source strike (see Fig. 1 and 3), wherein the device as an integral part of a rearview mirror module in the vehicle (see Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the device of Nakamura et al. with a rearview mirror module in the vehicle as taught by Stam et al., to enable visual access to the windshield without interfering with the visual acuity of the driver.

Regarding Claim 14, Nakamura et al. teach the device as taught in Claim 1, according to the appropriate paragraph above. Nakamura et al. do not teach the control unit associated with a windshield cleaning system such that the windshield cleaning system is activated when the control unit detects dirt on the windshield. Stam et al. teach a device for detecting particles on a windshield of a motor vehicle with a radiation source (66) (see Fig. 2) which emits optical rays onto the windshield (see Fig. 3), a photodetector (32) which receives a portion of the rays emitted onto the windshield, and a control unit (see Col. 6, lines 6-15 and Col. 10, lines 32-34) which manages the radiation source and analyzes the rays received by the photodetector, wherein the radiation source is positioned outside the field of vision of a driver of the vehicle (see Fig. 3) and aligned in such a way that the light rays from the radiation source strike the windshield in the area of the field of vision, and that the photodetector is pointed at the area of the windshield which the optical rays from the radiation source strike (see Fig. 1 and 3), wherein the control unit is operably associated (see Fig. 6) with a windshield cleaning system (40) of the vehicle such that the windshield cleaning system is activated when the control unit detects dirt on the windshield (see Col. 3, lines 53-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the device with a windshield cleaning system

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as taught by Stam et al. in the device of Nakamura et al., to provide automatic windshield cleaning upon necessity without driver intervention.

Regarding Claim 16, Nakamura et al. teach the device as taught in Claim 2, according to the appropriate paragraph above. Nakamura et al. do not teach the light emitting diode as emitting optical rays having different wavelengths. Stam et al. teach a device for detecting particles on a windshield of a motor vehicle with a radiation source (66) (see Fig. 2) which emits optical rays onto the windshield (see Fig. 3), a photodetector (32) which receives a portion of the rays emitted onto the windshield, and a control unit (see Col. 6, lines 6-15 and Col. 10, lines 32-34) which manages the radiation source and analyzes the rays received by the photodetector, wherein the radiation source is positioned outside the field of vision of a driver of the vehicle (see Fig. 3) and aligned in such a way that the light rays from the radiation source strike the windshield in the area of the field of vision, and that the photodetector is pointed at the area of the windshield which the optical rays from the radiation source strike (see Fig. 1 and 3), wherein the radiation source is a visible LED (see Col. 10, lines 59-60), which inherently possesses a plurality of wavelengths within a visible spectrum range. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the light-emitting diode to emit different wavelengths as taught by Stam et al. in the device of Nakamura et al., to provide improved detection according to the specific absorption characteristics of the windshield as taught by Stam et al. (see Col. 10, lines 22-24).

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Hegyi US Patent No. 5,703,568.



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Nakamura et al. teach the device as taught in Claim 1, according to the appropriate paragraph above. Nakamura et al. do not teach the device connected over a bi-directional data bus to a superordinate control unit in the vehicle. Hegyi teaches an image sensor for detecting particles on a windshield connected to a superordinate control unit (46) (see Fig. 3). Although Hegyi does not mention the connection of the device to the superordinate control unit over a bi-directional data bus, it is inherent that a data bus is used to convey data between the device and the superordinate control unit, and the superordinate control unit both sends and receives data bi-directionally to the device to obtain sensor data from the device and to control the device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the superordinate control unit over a bi-directional data bus of Hegyi with the device of Nakamura et al., to provide feedback for other vehicle functions and enable the activation and deactivation of the device.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Schofield et al. WO 99/23828.

Nakamura et al. teach the device as taught in Claim 1, according to the appropriate paragraph above. Nakamura et al. do not teach the photodetector as a CCD array. Schofield et al. teach (see Fig. 2b and 6) a device for detecting particles on a windshield (19) comprising a light source (38) and a photodetector (36) receiving a portion of the rays emitted onto the windshield, wherein the photodetector is a CCD array (see Page 5, lines 29-32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a CCD image converter as the photodetector as taught by Schofield in the device of Stam et al., to

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provide imaging means for more accurate detection of the existence of particles on the windshield.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Teder US Patent No. 6,262,407.

Nakamura et al. teach the device as taught in Claim 2, according to the appropriate paragraph above. Nakamura et al. do not teach the light emitting diode operable to emit optical rays having different intensities. Teder teaches (see Figs. 1 and 2) a device for detecting particles on a windshield of a vehicle with a radiation source (40/52) which emits optical rays onto the windshield (20) (see Col. 4, lines 9-10) with a photodetector (44/54) which receives a portion of the rays (42) emitted onto the windshield, and with a single control unit (58) for managing the radiation source and analyzing the rays received from the photodetector, wherein the radiation source is operable to emit optical rays having different intensities (see Col. 6, lines 10-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the light emitting diode emit optical rays having different intensities as taught by Teder in the device of Nakamura et al., to improve particle detection for windshields having different transmittances and compensate for changes in electronic components, as taught by Teder (see Col. 3, lines 4-7).

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Breed et al.

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Nakamura et al. teach the device as taught in Claim 2, according to the appropriate paragraph above. Nakamura et al. do not teach the light emitting diode positioned such that the optical rays strike the windshield at a similar angle with respect to a driver's line of sight. Breed et al. teach (see Fig. 1D) a device where a light emitting diode (113) (see Col. 5, lines 51-52 and Col. 13, lines 3-4) is positioned such that the optical rays strike the windshield at a similar angle with respect to a driver's line of sight (see Fig. 1D), mounted by the interior light module of the vehicle (see Col. 13, lines 10-12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to position the light emitting diode so the optical rays strike the windshield at a similar angle with respect to a driver's line of sight as taught by Breed et al. in the device of Nakamura et al., to prevent the light from interfering with the driver's view on the windshield and hampering his/her driving abilities.

### *Response to Arguments*

11. Applicant's arguments have been considered but are not considered persuasive.

Regarding Applicant's arguments on Claims 1-6 and 8-10 as rejected under 35 U.S.C. 102(b) by Nakamura et al., Examiner asserts that Nakamura et al. teaches a single control unit which contains the two controllers (7) and (10) composed together to form the single control unit. Although Applicant submits that unexpected benefits occur from using a single controller such as analysis based on the known frequency/intensity/duration of the light from the light emitting diode- however, the claim language by itself does not provide sufficient detail to support such a benefit.

Regarding Applicant's arguments on the Breed reference as not teaching the sensor as *integral* with an interior light module, Examiner submits that having the sensor *by* the interior light module is nearly equivalent to being *integral* with the interior light module, and that it is well known in the art to integrate two components which are adjacent to each other, as further explained in the above rejection of Claim 11.

12. Applicant's arguments with respect to claims 7 and 11-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Larson et al. US Patent No. 4,859,867, teaches a device for detecting particles on the windshield of a vehicle comprising a radiation source, a photodetector to detect a portion of the optical rays reflected from the windshield, and a single control unit which controls the radiation source and analyzes the signal from the photodetector.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703)308-4852. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703)308-7724 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

SY  
April 23, 2003



DAVID PORTA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800